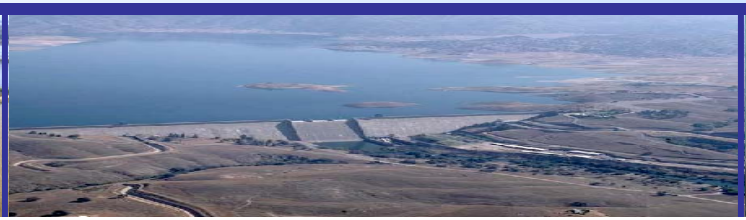
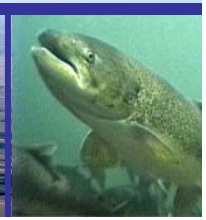
RMC Upper San Joaquin River Conceptual Restoration Plan

May 18, 2006





Conceptual Restoration Plan Objective

The objective of the Upper San Joaquin River Conceptual Restoration Plan is development of an implementable set of actions that enhance human and environmental functions of the upper San Joaquin River.

An implementable plan has the following attributes:

- Incorporates the values of stakeholders
- Reliant on development of "**new water**" for restoration, use of non-flow actions, and maximum beneficial use of water
- Focuses on restoration actions that are beneficial to both human water users and the environment
- Contributes to the conservation and recovery of natural plant and wildlife communities
- Maintains an agriculture economy and community in the San Joaquin Valley

Study Area

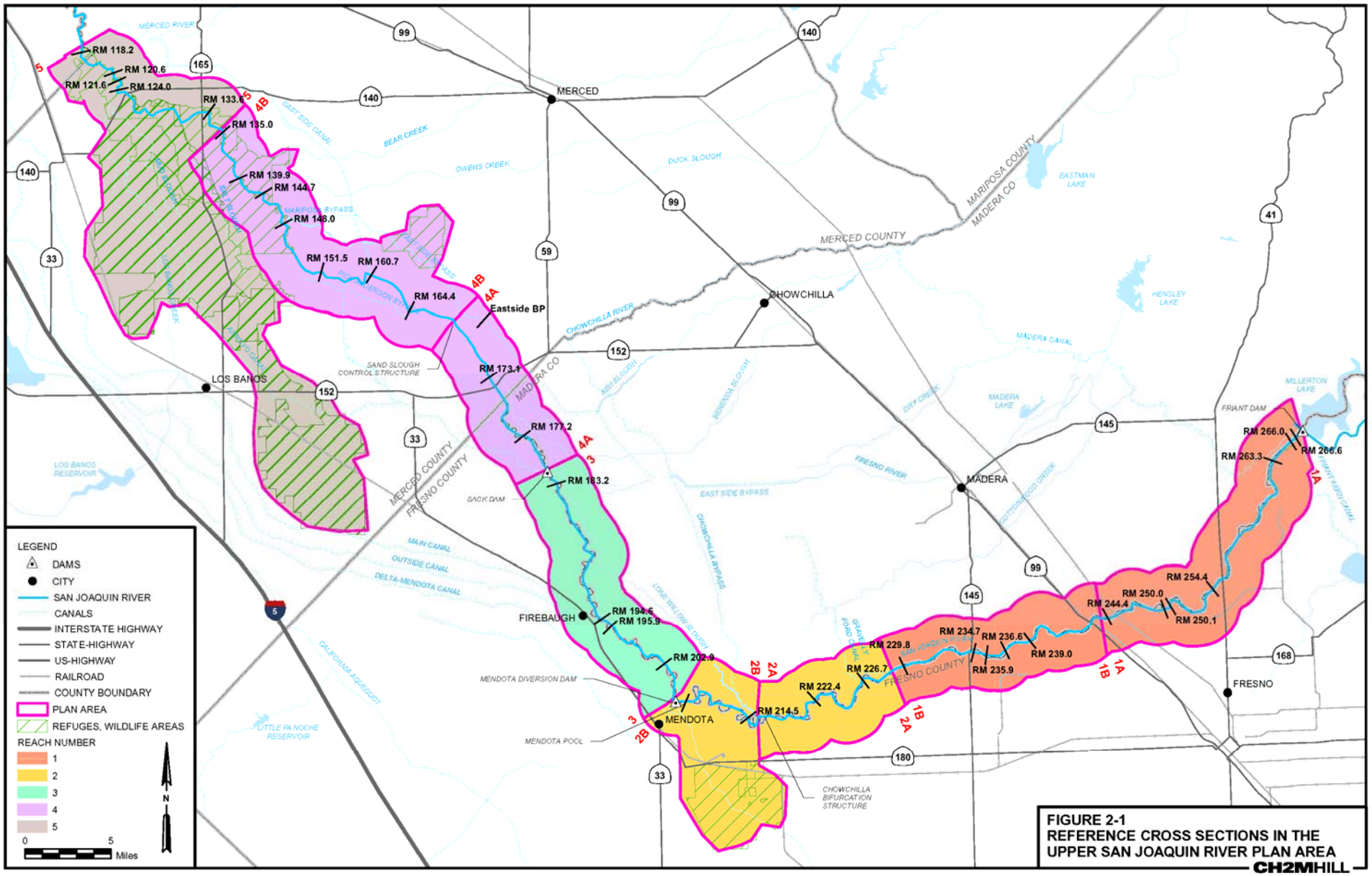
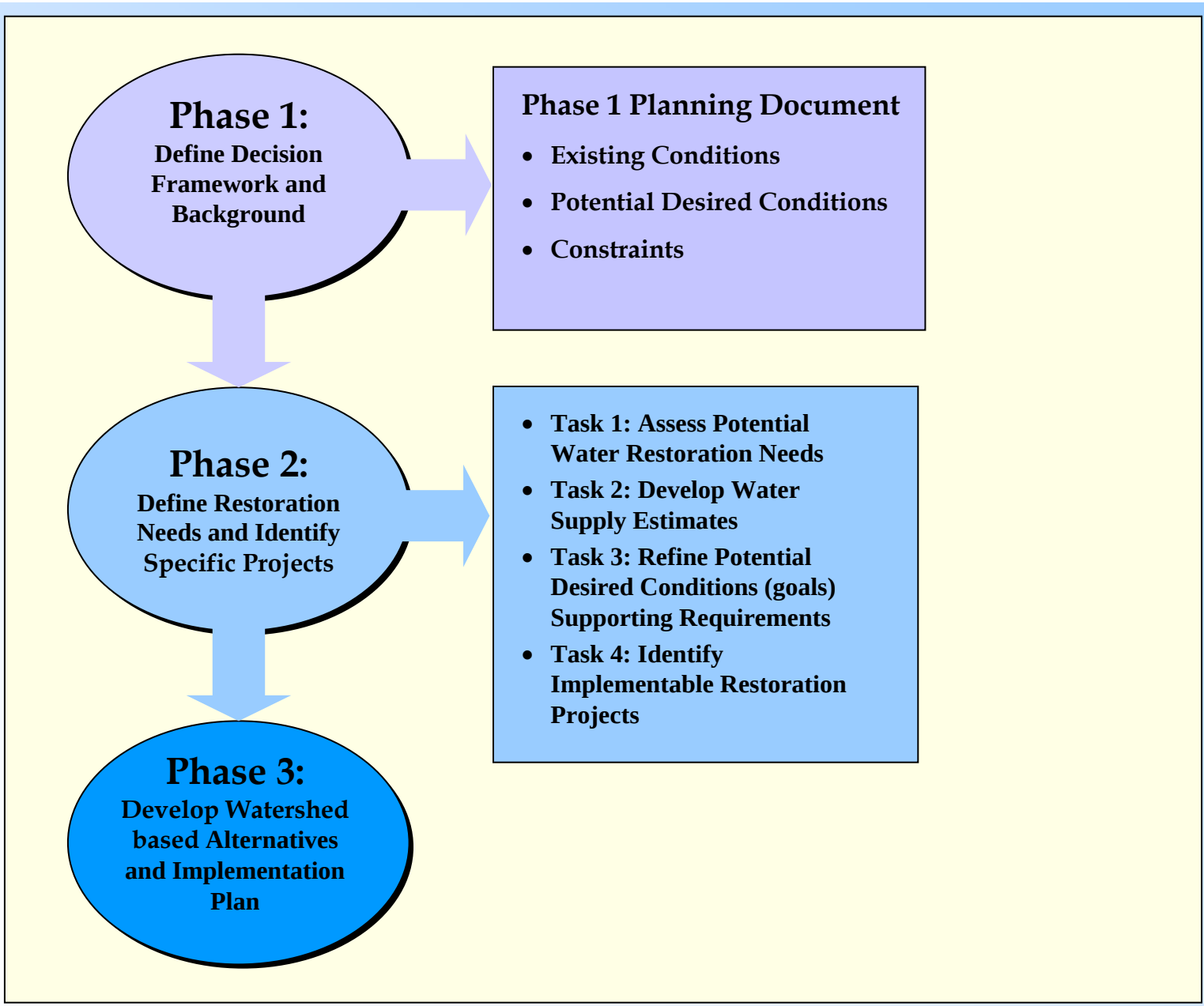


FIGURE 2-1
REFERENCE CROSS SECTIONS IN THE
UPPER SAN JOAQUIN RIVER PLAN AREA

CH2MHILL

Three Phase Planning Process



Water Needs "Bookends"

Month	Existing Loss & Diversion	Restoration Hydrograph Release (TAF)							
		Native Resident (Friant Dam to Mendota Pool)				Spring-run+Fall-run+Vegetation (Friant to Merced River)			
		Dry	ND	NW	Wet	Dry	ND	NW	Wet
Jan	5	27	27	27	27	34	45	71	71
Feb	5	24	24	24	31	29	40	125	125
Mar	7	27	27	34	155	69	91	220	220
Apr	9	26	26	149	149	46	86	271	375
May	11	27	27	97	97	27	29	128	330
Jun	13	28	28	28	28	28	28	33	171
Jul	14	29	29	29	29	29	29	29	47
Aug	16	29	29	29	29	29	29	29	19
Sep	13	28	28	28	28	30	30	31	31
Oct	10	29	29	29	29	30	42	66	66
Nov	7	28	28	28	28	31	42	65	65
Dec	7	27	27	27	27	34	45	69	69
Total	117	330	330	529	658	416	534	1137	1600
Total including	**117**	**447**	**446**	**646**	**774**	**533**	**650**	**1253**	**1717**

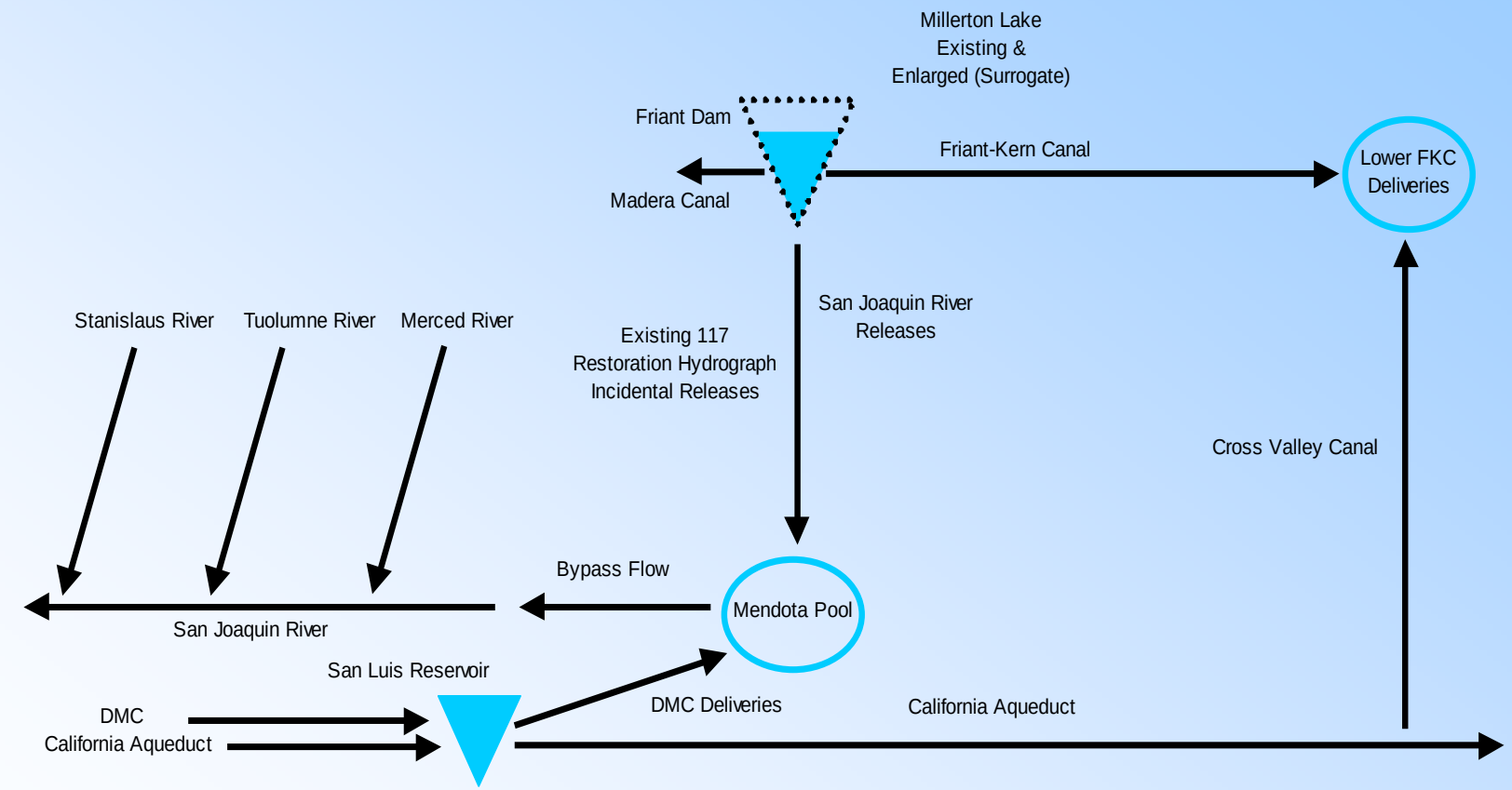
TAF = thousand acre-feet

Water Supply Analysis

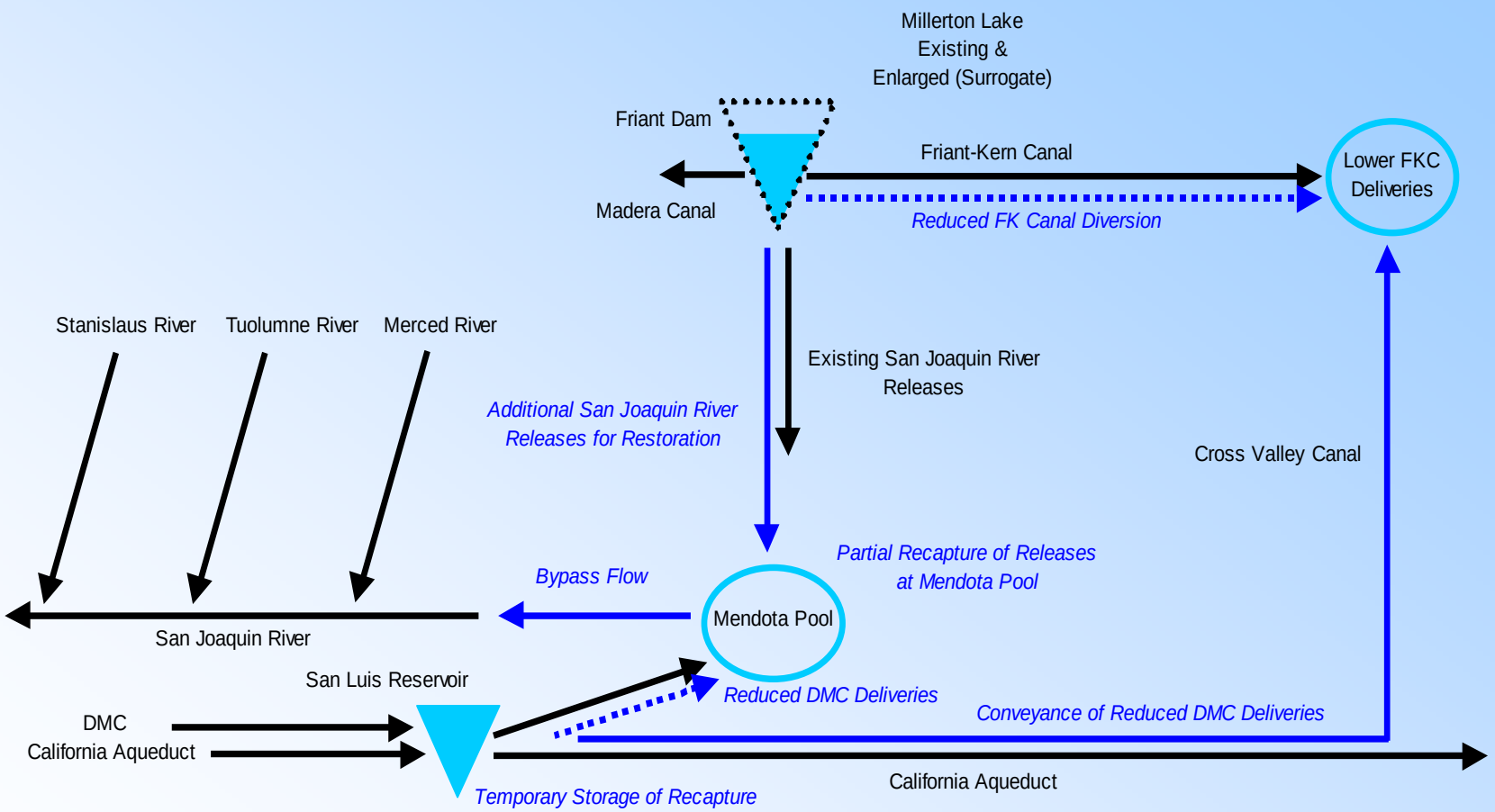
Evaluate system's ability to meet biological water needs through the development of new water

- Existing condition baseline operation for the Friant Division is maintained
- The operation maintains existing levels of Class 1, Class 2 and flood flow (Section 215) deliveries
- Model data and logic consistent with CALFED Upper San Joaquin Storage Investigation
- Hydrologic analysis period Water Years 1922 through 1994
- Four water supply scenarios evaluated
  - Existing system and operational criteria
  - Existing system plus recapture at Mendota Pool
  - Increase reservoir storage to 2 million acre-feet
  - Increase reservoir storage plus recapture at Mendota Pool

General System Representation



Recapture Operation



Define Achievable Conditions for Restoration Planning

Evaluate feasibility of Phase 1 Potential Desired Conditions (PDCs) supporting requirements.

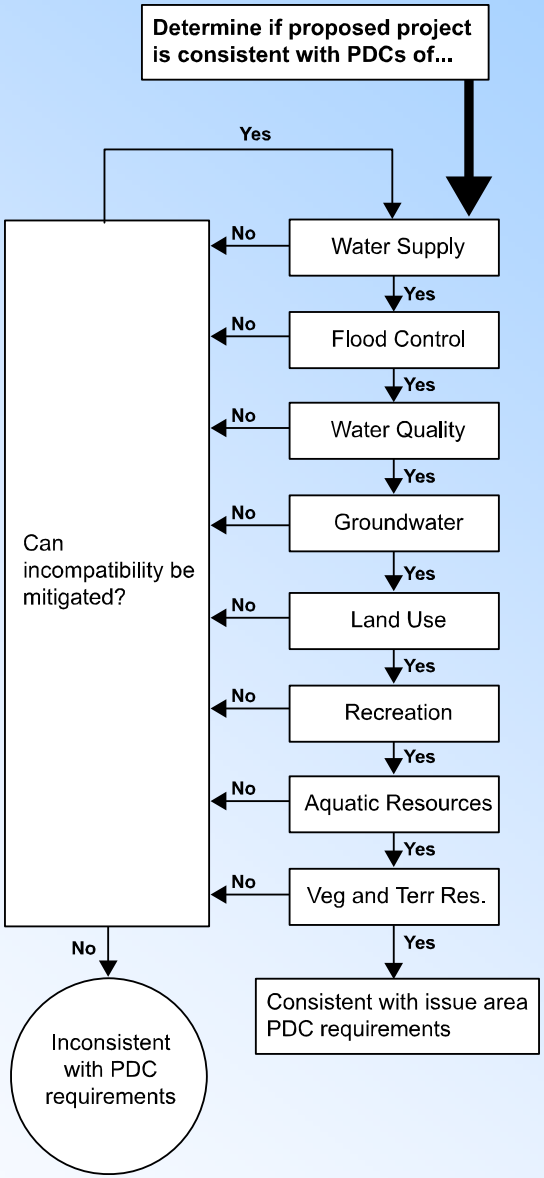
- Identify PDC requirements for which implementable restoration actions can be developed based on estimates of potential new water supplies and compatibility with other requirements
- Use new quantitative information developed in the biological water needs and water supply analyses tasks
- Requirements with no conflicts or mitigable conflicts are categorized as “achievable”
- Requirements that are not mutually compatible or have conflicts that cannot be mitigated are categorized as “unachievable”
- Identification of a requirement as “unachievable” does not imply the requirement does not have restoration value.

Summary Evaluation Results

Evaluation of PDC supporting requirements for eight Issue Areas:

- Flood control – Achievable with appropriate mitigation
- Water supply – Achievable with development of “new” supply
- Water quality – Achievable with appropriate mitigation
- Groundwater – Achievable with appropriate mitigation
- Land use – Achievable with appropriate mitigation
- Recreation – Achievable with appropriate mitigation
- Aquatic resources
  - Native resident species enhancement flows achievable with development of “new” water supply
  - Spring-run and Fall-run requirements are unachievable based on results of biological water needs and water supply analysis
- Riparian, wetland, and terrestrial resources – Achievable with mitigation

Restoration Project Evaluation Process



List of Active and Proposed Restoration Projects In the USJR Area

Project	Action / Benefit	Participating Organizations
Jensen River Ranch	Riparian habitat enhancement, recreational access	San Joaquin River Conservancy, San Joaquin River Parkway & Conservation Trust, USBR
Mendota Dam Replacement	Water management: flood and sediment control, refuge habitat enhancement	Central California Irrigation District, USBR, USFWS, DFG
Floodplain restoration of the West Bear Creek Unit	Riparian habitat enhancement: passive levee breach	USFWS
East Bear Creek Wetland Restoration Project	Water management: wetland habitat enhancement	USFWS, USBR
West Side Regional Drainage Plan	Water management: drainage reduction, water quality improvement	Charlestown Drainage District , Pacheco Water District , Panoche Drainage District , Panoche Water District , Central California Irrigation District, Camp 13 Drainage District, Firebaugh Canal Water District, Broadview Water District, Westlands Water District
Milburn Unit/Hansen Farms Project	Riparian habitat enhancement	DFG, USBR, DWR, San Joaquin River Parkway and Conservation Trust, Wildlife Conservation Board
River Bottom Park Revegetation	Riparian habitat enhancement	San Joaquin River Parkway & Conservation Trust, City of Fresno
Ball Ranch	Riparian habitat enhancement, recreational access	San Joaquin River Conservancy, DFG
Moen Property	Bridge replacement / bank stabilization, and revegetation	DFG, State Lands Commission, San Joaquin River Parkway & Conservation Trust
San Joaquin River Parkway Master Plan	Riparian habitat enhancement, recreational access	San Joaquin River Conservancy, San Joaquin River Parkway & Conservation Trust, DFG, USBR, DWR
Lonestar Property Acquisition	Riparian Habitat enhancement, recreational access	San Joaquin River Conservancy
Vulcan Property Acquisition	Riparian habitat enhancement, recreational access	San Joaquin River Conservancy, San Joaquin River Parkway and Conservancy Trust
Gibson Property Acquisition	Riparian habitat enhancement	San Joaquin River Conservancy

Phase 2 Conclusions

Water supply analysis results show the estimated frequency and magnitude with which water need hydrographs could potentially be met over the 72-year simulation period

- With additional storage the estimated amount of new water available on a average annual basis ranges from 200,000 to 300,000 acre-feet
- Annual requirements for new water for salmon and riparian vegetation restoration range from 416,000 to 1,600,000 acre-feet.
- New water would be sufficient to improve habitat in Reach 1 and restore habitat in Reach 2 from Gravelly Ford to Mendota Pool
- With additional storage - Fall-run/Spring-run plus vegetation flow targets are met only 4 percent of the time.
- Restoration of anadromous salmonids is a desirable goal for the RMC, however the condition is not achievable through the development of new water.
- The Phase 2 analysis and products provide critical quantitative information and decision tools to evaluate future restoration alternatives/actions.